

National FFA Convention - Dairy Cattle Housing and Facilities Scenario October 2018

Scenario

You received a call from Felecia and Francis Arneson, owners of FFA Family Dairy, located in the Southeastern US. The Arnesons are in the process of expanding the farm as their daughter, Faith, has been working on the farm for several years after graduating from college and would like to become a partner in the dairy operation. The Arnesons have called you to get your advice on helping with the expansion and addressing some challenges they are currently seeing with housing for their dairy herd as they work towards the full expansion and increasing cow numbers.

Herd Overview

FFA Family Dairy had been milking about 500 Holstein dairy cows, but they are currently increasing cow numbers as they hope to increase the size of their milking herd to 1200 lactating cows over the next year. They have been breeding all of their heifers and many of their lactating cows to sexed semen for the past 3 years in anticipation of the expansion. Additional labor needed to handle this expansion is available on this farm as another enterprise is being scaled back. At this time, they are up to 800 cows and heifers milked daily. The farm currently has a rolling herd average of 28,200 lbs of milk. Prior to the start of this expansion, the herd averaged 3.9% milk fat and 3.15% protein with a SCC of 180,000 cells/ml. However, daily milk production has been falling over the past 6 months and cows are now down 6 lbs of milk per day compared to a year ago after taking into account the current number of days in milk. In addition, milk fat is down to 3.7% even though the ration and particle size of the TMR are very similar. Somatic cell count has increased to 240,000 cells/ml.

Right now, cows are milked 3 times a day in a double-12 parallel milking parlor. It takes cows 15 minutes to enter, complete the milking process, and exit the parlor. The plan is to build both a new parlor for milking the entire herd and a new free stall barn to accommodate the increased number of cows for the expansion. The current facility has plenty of land surrounding it on all four sides to accommodate the expansion of facilities.

FFA Family Dairy is feeding one TMR ration to all lactating cows except for the fresh cows that are receiving a TMR formulated especially for their nutritional needs. The rations were properly balanced by a nutritionist to meet the nutrient needs of the fresh cows and lactating cows and are accurately mixed and fed twice a day at 6:00



Figure 1. Automatic feed pusher that pushes up feed every hour for 22 hrs per day.

am and 6:00 pm. Feed is pushed up every hour for 22 hrs daily using an automatic feed pusher and nutrition is not a concern for the dairy at this time.

Heat detection is done using an activity-monitoring technology. In addition to helping detect cows in heat, this technology measures the amount of time cows spend resting in the free stalls. Lying times have decreased by 1.5 hours within the past 6 months.

The milking herd is housed in two 4-row free stall barns (Figure 2).

Pen 1: 96 stalls – High production cows - 2nd lactation and greater

Pen 2: 96 stalls – High production/Mid-lactation cows - 2nd lactation and greater

Pen 3: 96 stalls – Early lactation & breeding cows - 1st lactation

Pen 4: 96 stalls – Late lactation cows - 1st lactation

Pen 5: 96 stalls – Late lactation cows - 2nd lactation and greater

Pen 6: 36 stalls – Fresh cows - 1st lactation and greater

Pen 7: 36 stalls – Close up dry cows and heifers

Pen 8: 96 stalls – Mid-lactation cows - 1st lactation and greater (previously far-off dry cows and springing heifers)

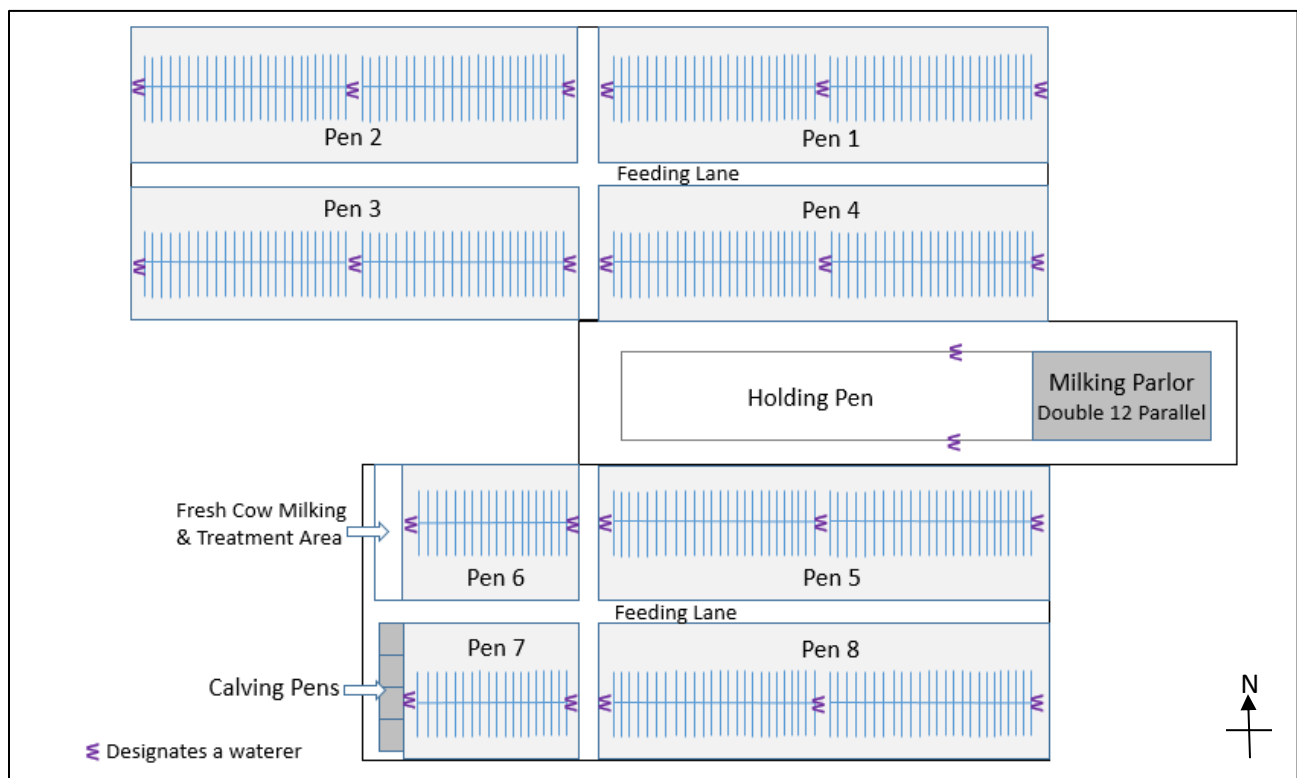


Figure 2. Diagram of the barns, holding pen, and milking parlor. (Drawing is not to scale)

The stalls in the free stall barns have mattresses bedded with wood shavings. New bedding is added 2 times per week (Figure 3). The stalls are correctly sized for Holsteins according to the latest university recommendations.

Each group of cows housed within a pen are brought to the parlor together and are returned to the pen after the last cow is milked.

The free stall barns are all equipped with fans (over each row of free stalls and at the feedbunk) and soakers (at the feedbunk) that are on automatic timers and are programmed to go on at the appropriate temperature-humidity index (THI) according to the most current university recommendations. Fans and soakers in the holding pen are also on the same programmed schedule.

The springing heifers and all dry cows had previously been housed in the free stall barn. Because of the need for extra barn space, both pens for the far-off dry cows (from dry off to 21 days prior to calving) and springing heifers have been switched to housing for the lactating cows. The springers and far-off dry cows are now being housed in a pasture that has a feed bunk along a dirt lane on one side of the pasture. No shade or housing structures are provided in the pasture or over the feed lane and bunk.



Figure 3. Picture of the stalls in the free stall barn in the high cow group (Pen 1).



Figure 4. View of the current dry cow and heifer pasture.

In addition to an overall evaluation of the current farm program, Felecia has a few specific questions for you:

- What would you recommend they build for a new milking parlor? What type of parlor should they put in and how many stalls should it be? Where would the new parlor be located?
- What factors are important to consider when determining the sizing and placement of a new free stall barn(s)? How many cows do you recommend for each pen in the new free stall barn and how many stalls should be in each pen?
 - How many cows should the holding pen be built to accommodate?
- What explanations do you have as to why milk production has fallen over the past year?